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Uncaria tomentosa* prevents non-alcoholic steatohepatitis and improves insulin sensitivity in diet induced and genetic obese mice*Layanne C C Arauj, Isadora C Furig, Gilson M Murata, J Donato Jr, Silvana Bordin, Rui Curi and Carla R O Carvalho**
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The Non-Alcoholic Fatty Liver Disease (NAFLD) is a clinical manifestation of metabolic syndrome. With the worldwide increase in obesity, there is also a burden of NAFLD that is estimated in the range of 20-30%. NAFLD includes the benign hepatic steatosis and the hepatic steatosis associated with inflammatory infiltrates, the Non-Alcoholic Steatohepatitis (NASH). NASH may lead to liver cirrhosis and to Hepatocellular Carcinoma (HCC) and about 10 to 20% of people with NAFLD develop NASH. Therefore, we investigated the effect of the herbal extract *Uncaria tomentosa* (Ut) (50 mg/kg, crude extract, for 5 consecutive days) on the Non-Alcoholic Fatty Liver Disease (NAFLD) of the Diet-Induced Obese (DIO) and genetically obese (ob/ob) mice. Both obese mice exhibited lipid droplets in the liver. The DIO mice had macro vesicular steatosis, whereas the ob/ob mice exhibited micro vesicular steatosis. The Ut treatment induced 35% and 20% reduction in the number of lipid droplets in the both obese animals, respectively. The Ut treatment reduced the serine phosphorylation of IRS-1 by 25% and by 40%, in the liver of DIO and of ob/ob mice respectively. Furthermore, the Ut treatment improved the inflammatory balance in the liver of both obese animals. There were reduced pro-inflammatory index (mRNA IL-1b/IL-10) to approximately 20% and decreased the pro-macrophage activation (mRNA F4/80/Arginase-1) to 12% in the DIO mice and reduced to 39% the pro-macrophage activation in the ob/ob mice compared to respective vehicle controls. Results herein reported, prompted to the conclusion that *Uncaria tomentosa* not only improves insulin sensitivity but also transforms NASH to a benign hepatic steatosis in two distinct models of obese mice. These effects are associated with a reduction in inflammatory conditions and decreased liver steatosis (steatohepatitis).

Biography

Layanne C C Arauj has her graduation degree in Biomedicine, Masters in Cell and Molecular Biology and she is currently a Doctoral student in Human Physiology at the Biomedical Sciences Institute of the University of São Paulo, working on various subjects like obesity, insulin resistance, hepatic steatosis and intestinal microbiota in the Laboratory of Intracellular Signaling.

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